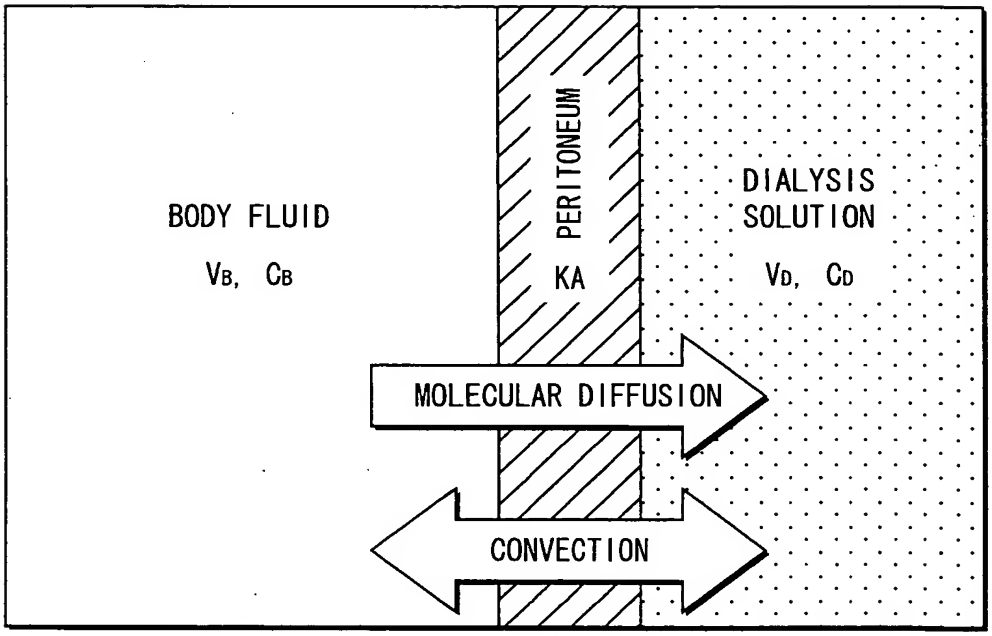
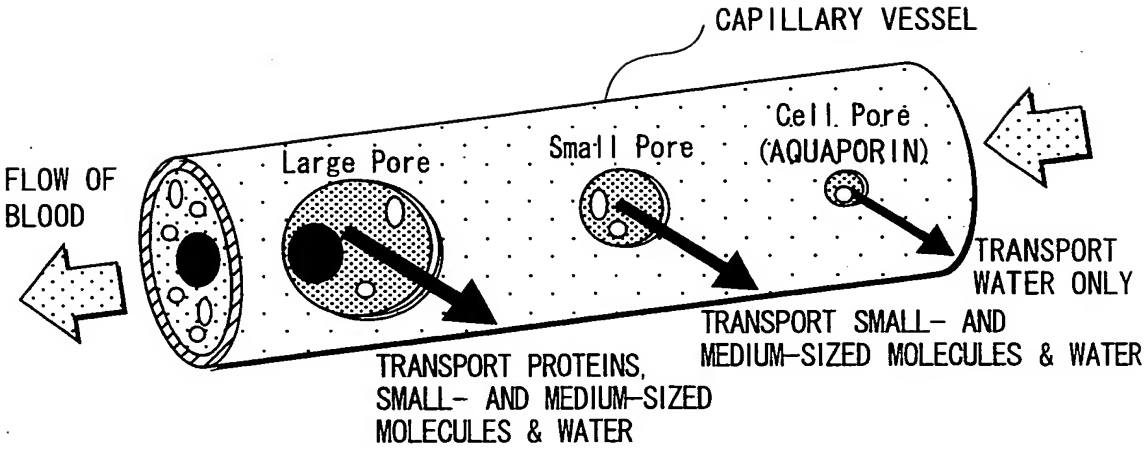
FIG. 1



MASS TRANSFER MECHANISM IN PERITONEAL DIALYSIS

FIG. 2



MASS TRANSFER PHENOMENON ACROSS A PERITONEUM,
BASED ON THREE-PORE THEORY (YAMASHITA, 1998, PARTIALLY MODIFIED)

FIG. 3

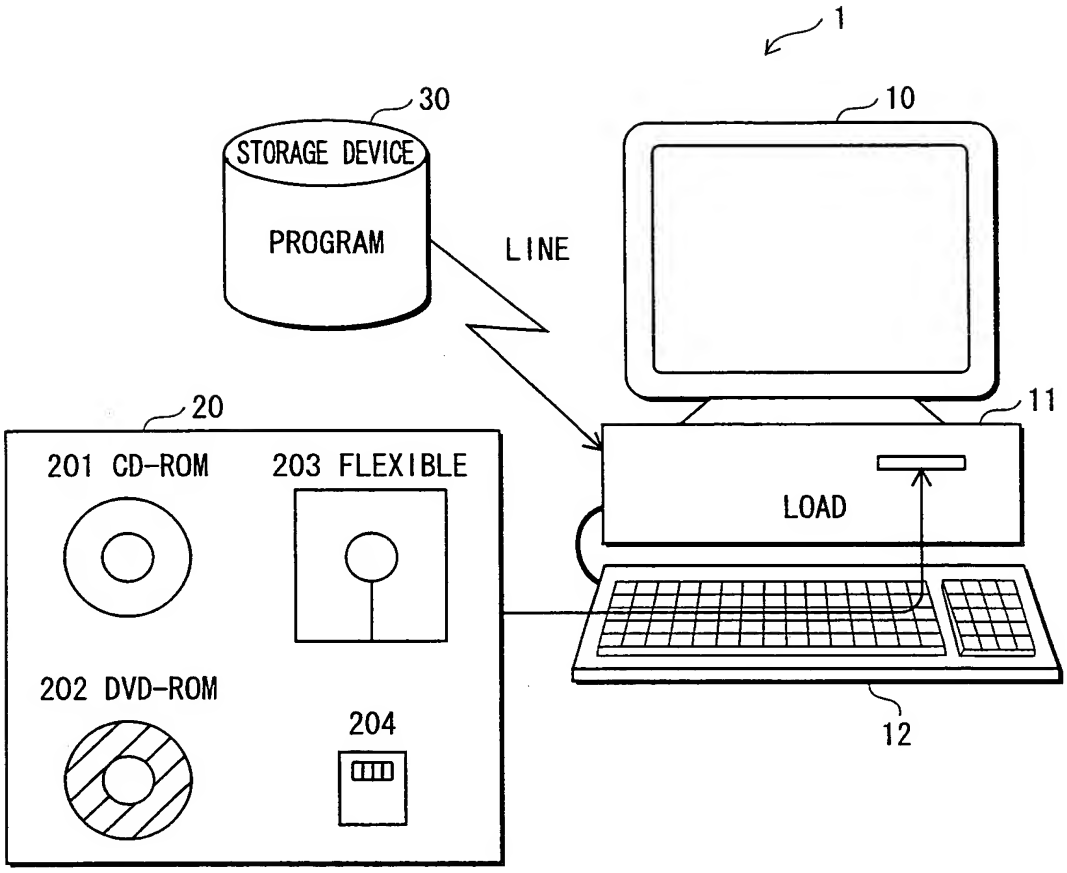

1
30
STORAGE DEVICE
PROGRAM
LINE
10
11
20
201 CD-ROM
203 FLEXIBLE
LOAD
202 DVD-ROM
204
12

FIG. 4

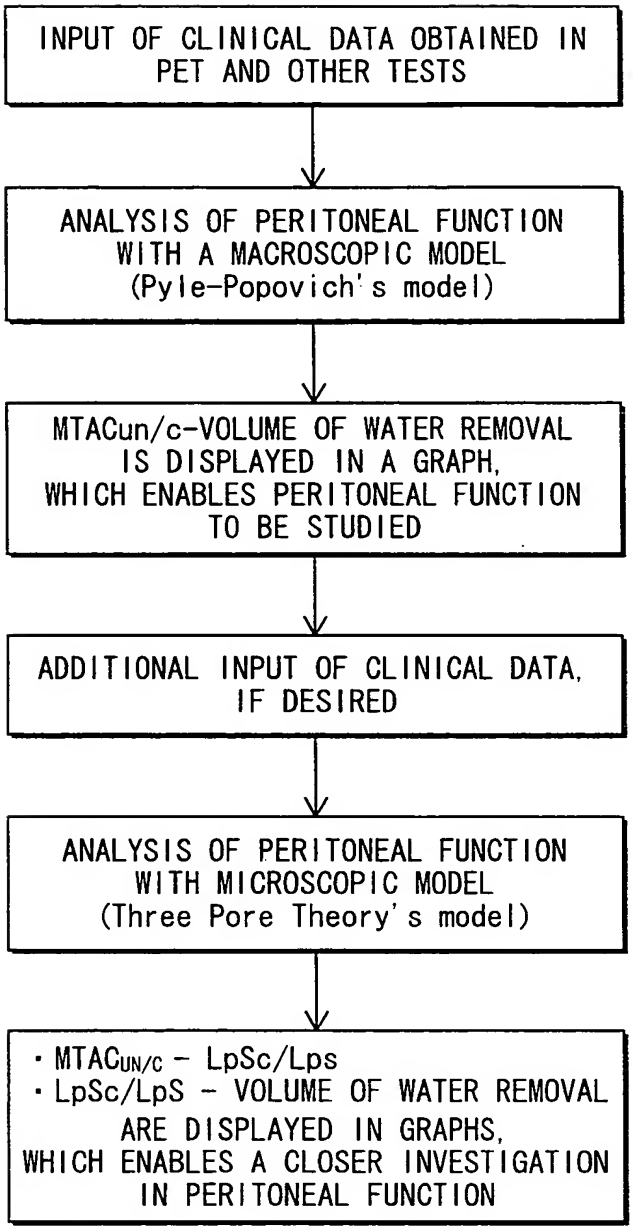
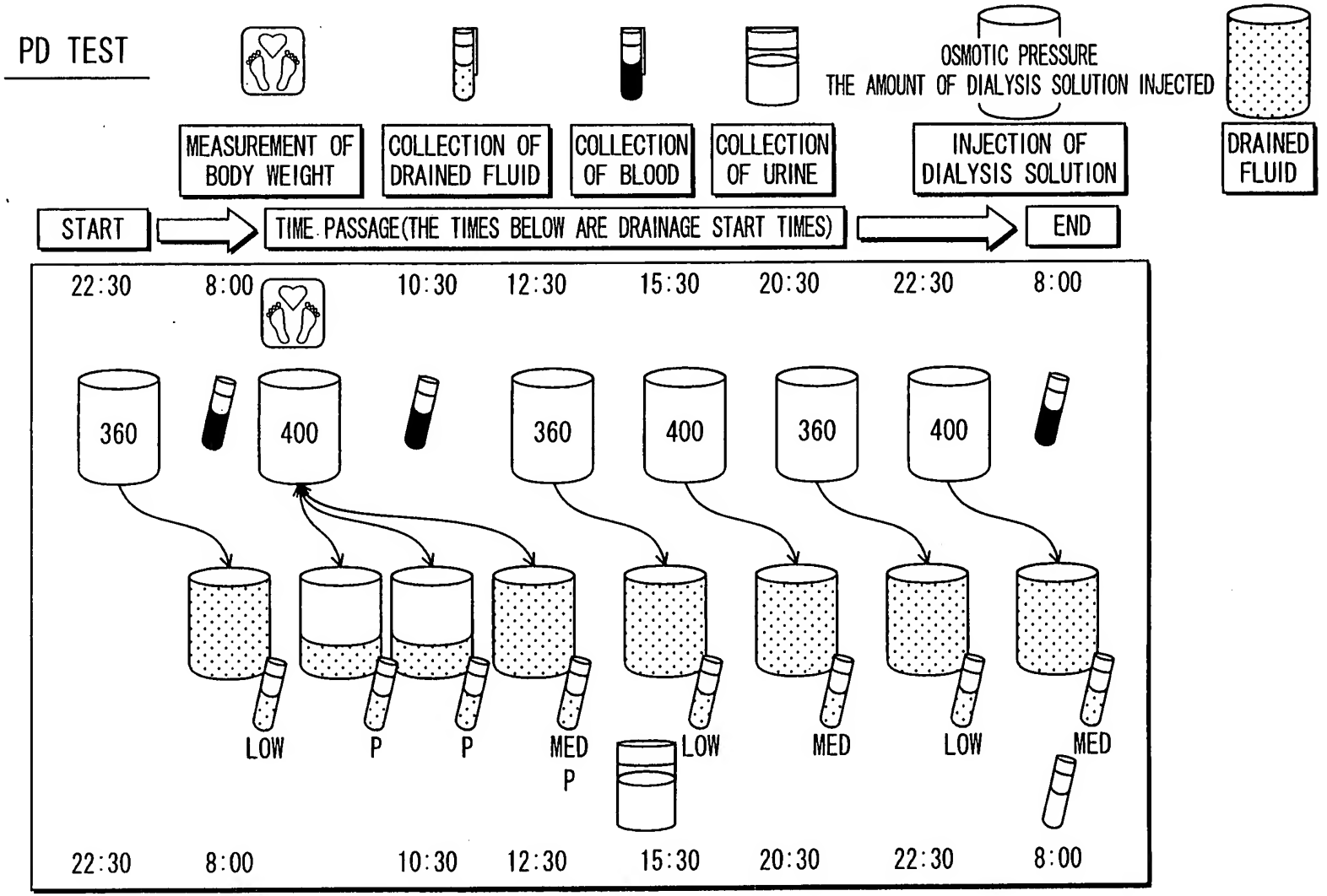

INPUT OF CLINICAL DATA OBTAINED IN PET AND OTHER TESTS
ANALYSIS OF PERITONEAL FUNCTION WITH A MACROSCOPIC MODEL (Pyle-Popovich's model)
MTACun/c-VOLUME OF WATER REMOVAL IS DISPLAYED IN A GRAPH, WHICH ENABLES PERITONEAL FUNCTION TO BE STUDIED
ADDITIONAL INPUT OF CLINICAL DATA, IF DESIRED
ANALYSIS OF PERITONEAL FUNCTION WITH MICROSCOPIC MODEL (Three Pore Theory's model)
・MTACUN/C - LpSc/Lps
・LpSc/LpS - VOLUME OF WATER REMOVAL ARE DISPLAYED IN GRAPHS, WHICH ENABLES A CLOSER INVESTIGATION IN PERITONEAL FUNCTION

FIG. 5



LOW: LOW OSMOTIC PRESSURE
MED: MEDIUM OSMOTIC PRESSURE
P : SAMPLE USED FOR PET

FIG. 6

PERITONEAL FUNCTION TEST INPUT DATA ITEMS

DATE (YY/MM/DD)	YEAR	MONTH	DAY	~	MONTH	DAY	
FAMILY NAME /GIVEN NAME			SEX	M/F	CHART NO.		
BIRTH DATE	YEAR	MONTH	DAY	HEIGHT (cm)		WEIGHT (kg)*	

*: MEASURED WITH AN EMPTY PERITONEAL CAVITY

URINE VOLUME (mL)		URINARY UREA NITROGEN (mg/dL)		URINARY CREATININE (mg/dL)	
URINARY PROTEIN (mg/dL)		URINARY SODIUM (mEq/L)			

BLOOD SAMPLE 1 (AM 8:00)		BLOOD SAMPLE 2 (PET-2)		BLOOD SAMPLE 3 (AM 8:00)	
TOTAL PROTEIN (g/dL)		TOTAL PROTEIN (g/dL)		TOTAL PROTEIN (g/dL)	
ALBUMIN (g/dL)		ALBUMIN (g/dL)		ALBUMIN (g/dL)	
SERUM CREATININE (mg/dL)		SERUM CREATININE (mg/dL)		SERUM CREATININE (mg/dL)	
UREA NITROGEN (mg/dL)		UREA NITROGEN (mg/dL)		UREA NITROGEN (mg/dL)	
GLUCOSE (mg/dL)		GLUCOSE (mg/dL)		GLUCOSE (mg/dL)	
SODIUM (mEq/L)		SODIUM (mEq/L)		SODIUM (mEq/L)	
CHLORIDE (mEq/L)		CHLORIDE (mEq/L)		CHLORIDE (mEq/L)	

SYSTEM	PERISATE	TW・ST		CIRCUIT WEIGHT	g

FIG. 7

BAG EXCHANGE	SUGAR CONCENTRATION IN MEDICAL SOLUTION	TOTAL WEIGHT OF MEDICAL SOLUTION	START TIME OF DRAINAGE	WEIGHT AFTER DRAINAGE	WEIGHT AFTER PRIMING	FINISH TIME OF INJECTION
	g/dL	g	hr:min	g	g	hr:min
22:30			:			:
8:00			:			:
PET-0			(:)	—	—	:
PET-2	—	—	(:)	—	—	—
PET-4	—	—	(:)			:
15:30			:			:
20:30			:			:
22:30			:			:
8:00	—	—	:		—	—

TEST OF DRAINED FLUID	PROTEIN CONCENTRATION	ALBUMIN	CREATININE	UREA NITROGEN	GLUCOSE	SODIUM	CHLORIDE
	mg/dL	mg/dL	mg/dL	mg/dL	mg/dL	mEq/L	mEq/L
—	—	—	—	—	—	—	—
D_1							
D_2 (PET0)							
D_3 (PET2)							
D_4 (PET4)							
D_5							
D_6							
D_7							
D_8							

FIG. 8

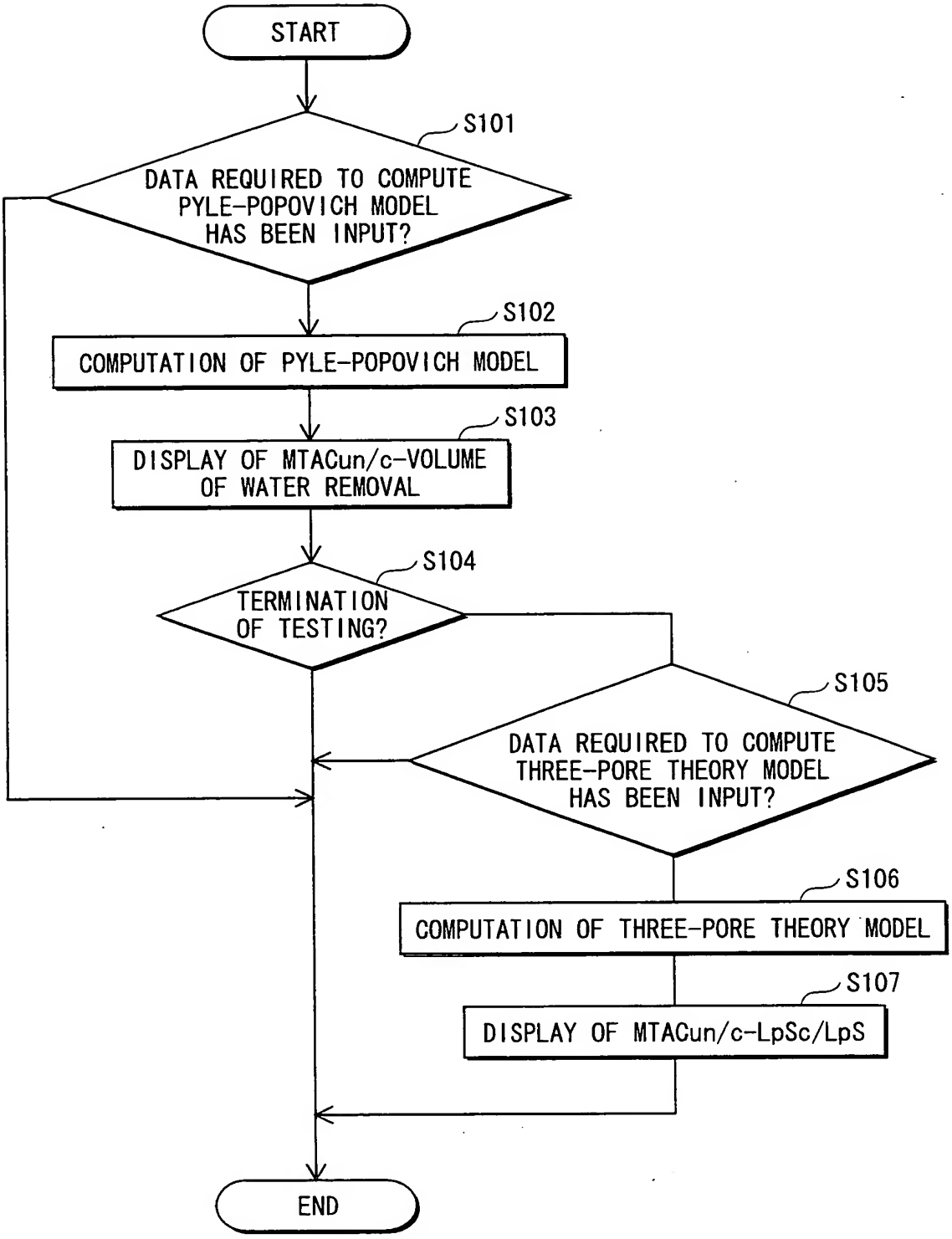

START
S101
DATA REQUIRED TO COMPUTE PYLE-POPOVICH MODEL HAS BEEN INPUT?
S102
COMPUTATION OF PYLE-POPOVICH MODEL
S103
DISPLAY OF MTACun/c-VOLUME OF WATER REMOVAL
S104
TERMINATION OF TESTING?
S105
DATA REQUIRED TO COMPUTE THREE-PORE THEORY MODEL HAS BEEN INPUT?
S106
COMPUTATION OF THREE-PORE THEORY MODEL
S107
DISPLAY OF MTACun/c-LpSc/LpS
END

FIG. 9

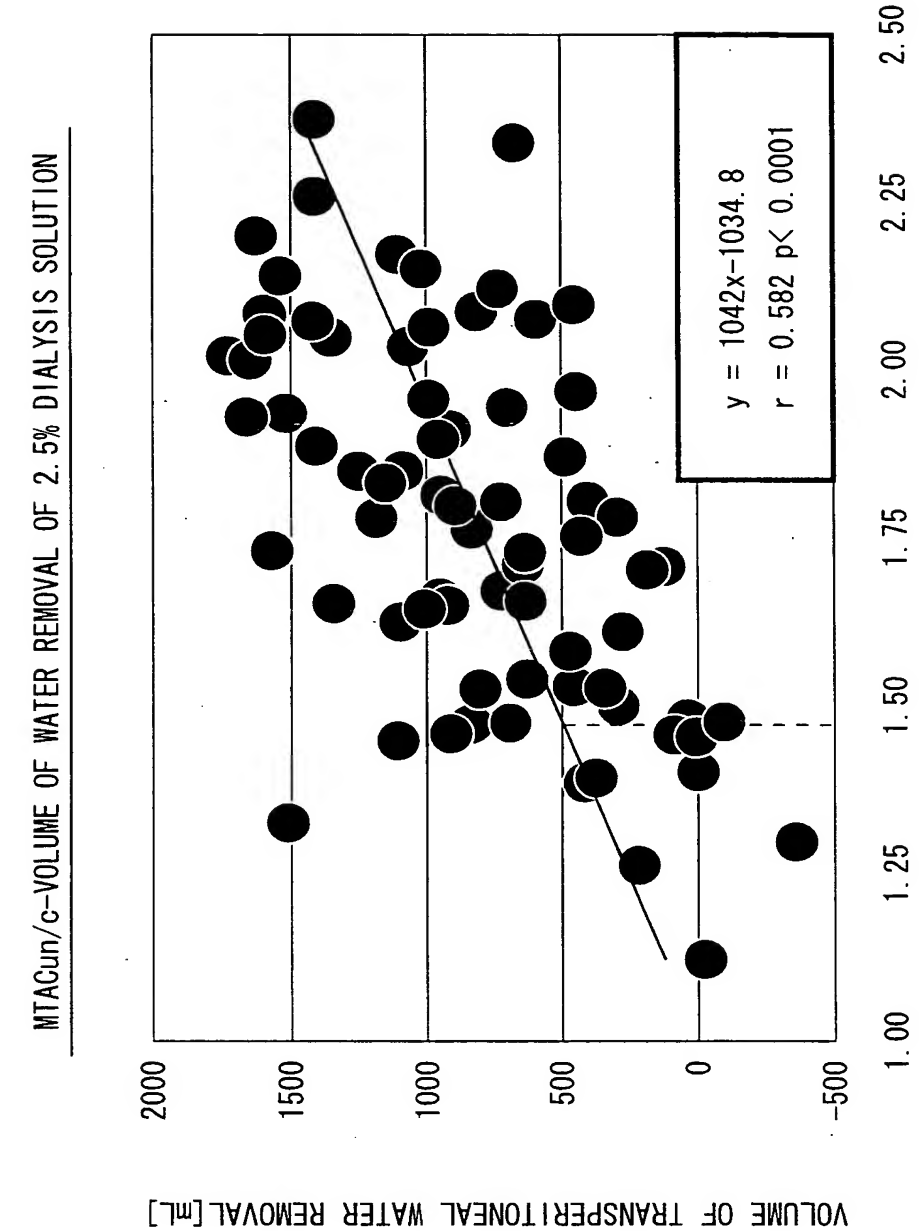

MTACun/c-VOLUME OF WATER REMOVAL OF 2.5% DIALYSIS SOLUTION
y = 1042x-1034.8
r = 0.582 p< 0.0001
VOLUME OF TRANSPERITONEAL WATER REMOVAL [mL]
2000
1500
1000
500
0
-500
1.00
1.25
1.50
1.75
2.00
2.25
2.50
MTACUN/C(2.5%) [-]

FIG. 10

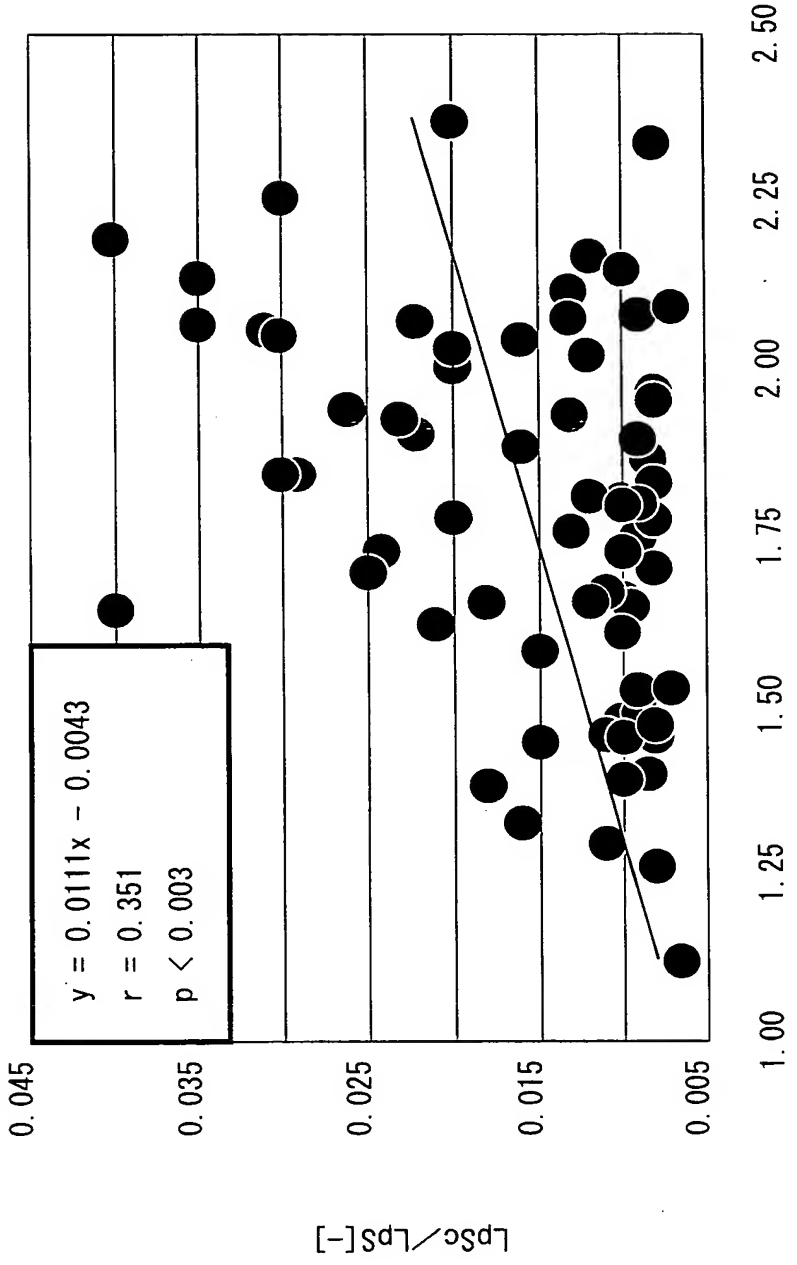

MTAC$_{UN/C}$-LpSc/LpS
y = 0.0111x - 0.0043
r = 0.351
p < 0.003
0.045
0.035
0.025
0.015
0.005
LpSc/LpS[-]
1.00
1.25
1.50
1.75
2.00
2.25
2.50
MTAC$_{UN/C}$[-]

FIG. 11

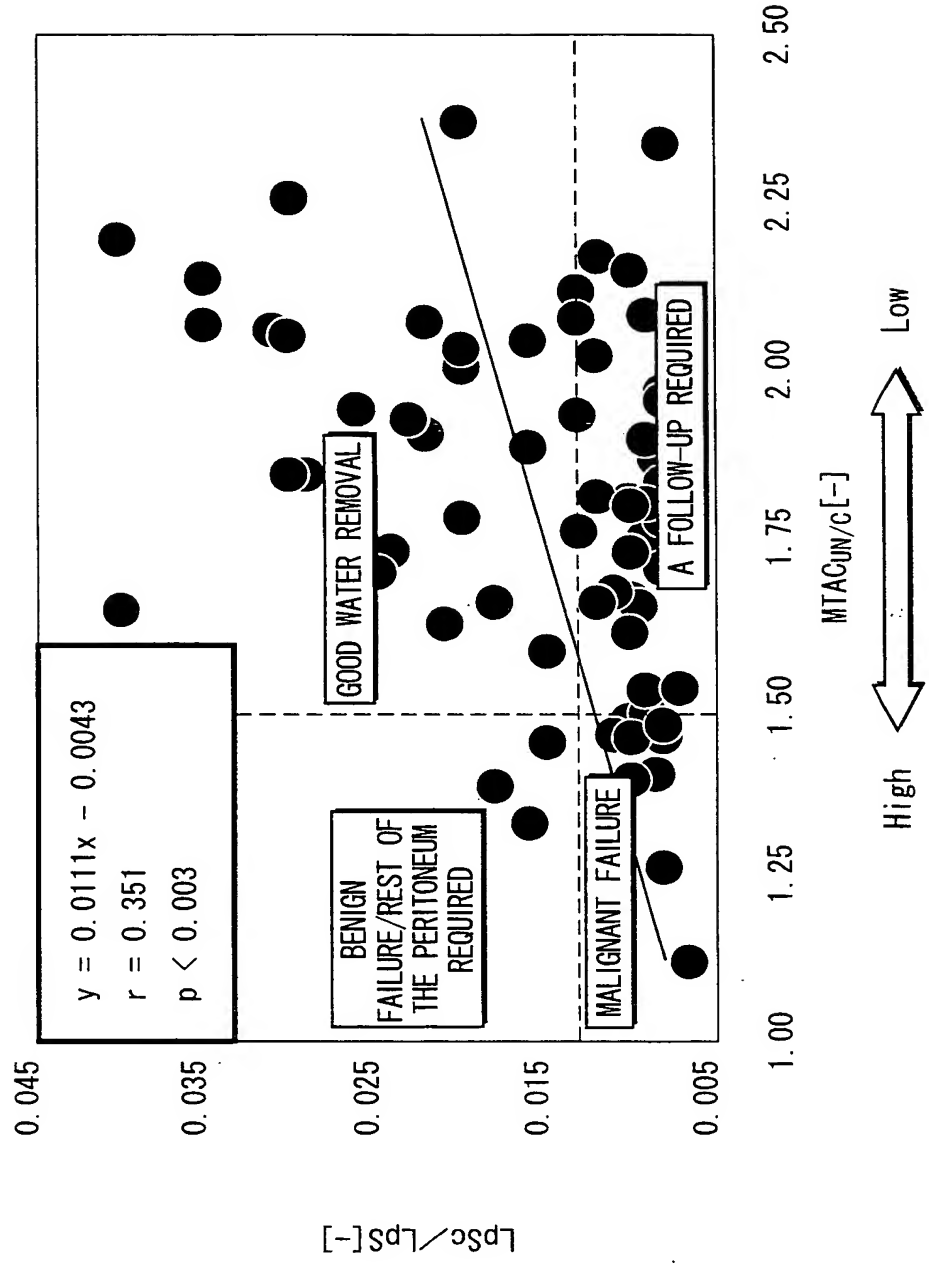

MTAC$_{UN/C}$-LpSc/LpS
y = 0.0111x - 0.0043
r = 0.351
p < 0.003
GOOD WATER REMOVAL
BENIGN FAILURE/REST OF THE PERITONEUM REQUIRED
MALIGNANT FAILURE
A FOLLOW-UP REQUIRED
0.045
0.035
0.025
0.015
0.005
LpSc/LpS[-]
1.00
1.25
1.50
1.75
2.00
2.25
2.50
MTAC$_{UN/C}$[-]
High
Low

FIG. 12

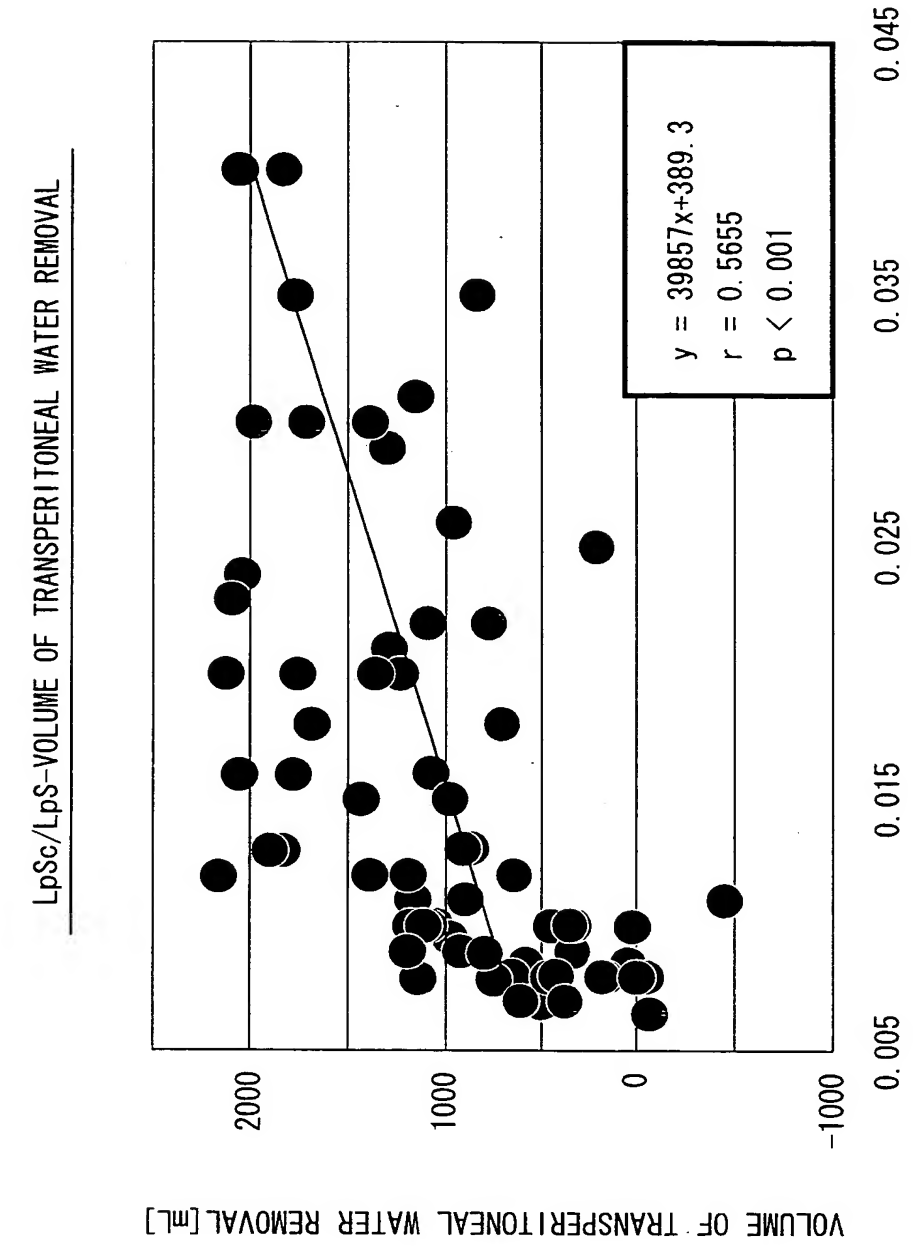

LpSc/LpS-VOLUME OF TRANSPERITONEAL WATER REMOVAL
y = 39857x+389.3
r = 0.5655
p < 0.001
2000
1000
0
-1000
0.005
0.015
0.025
0.035
0.045
VOLUME OF TRANSPERITONEAL WATER REMOVAL[mL]
LpSc/LpS[-]

FIG. 13

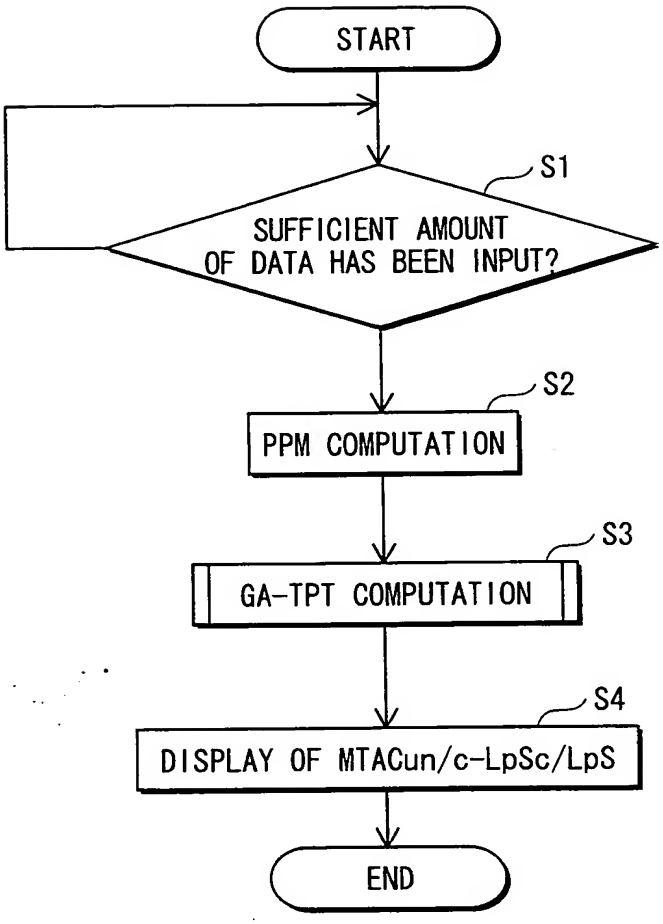

START
S1
SUFFICIENT AMOUNT OF DATA HAS BEEN INPUT?
S2
PPM COMPUTATION
S3
GA-TPT COMPUTATION
S4
DISPLAY OF MTACun/c-LpSc/LpS
END

FIG. 14

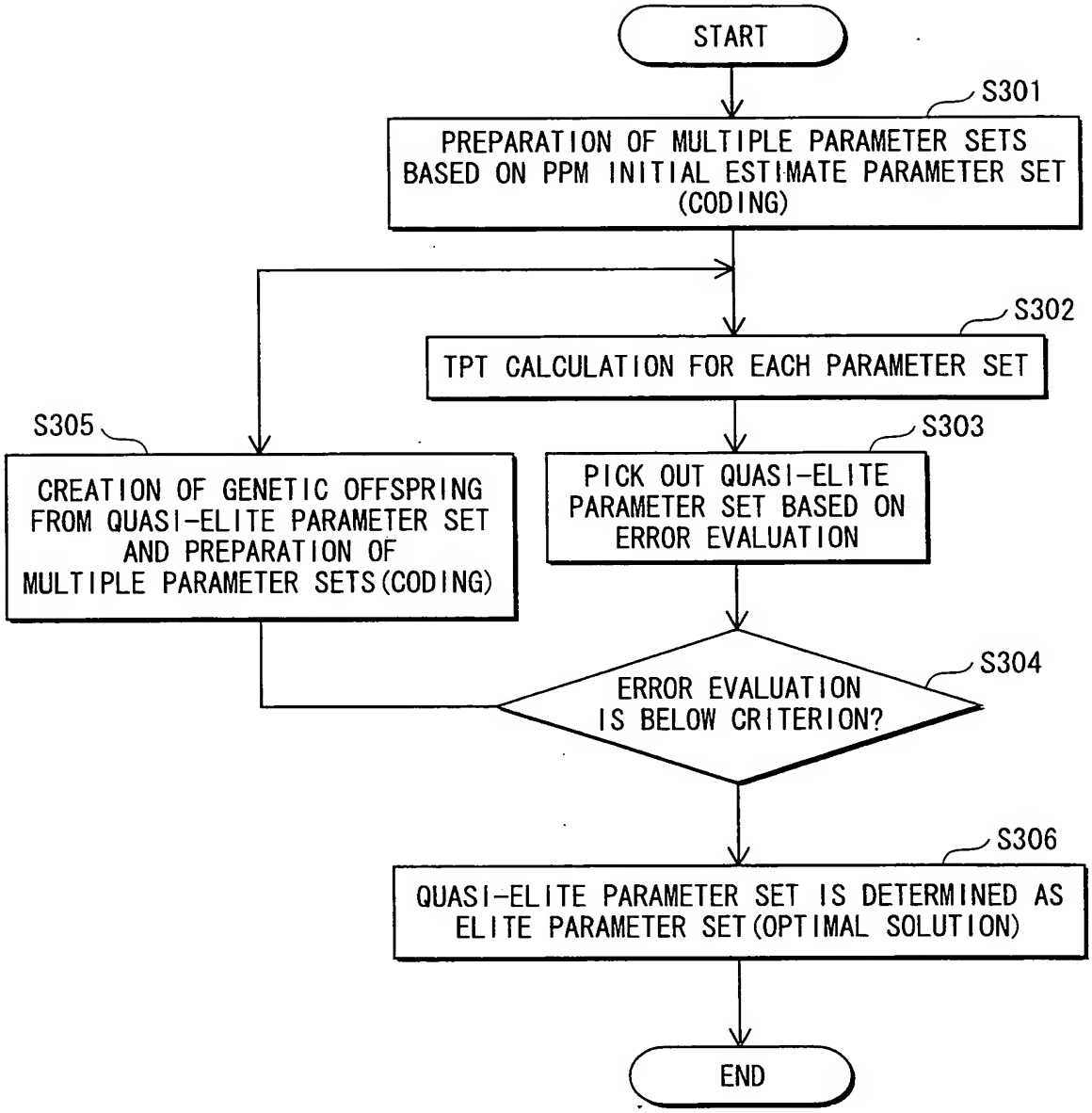
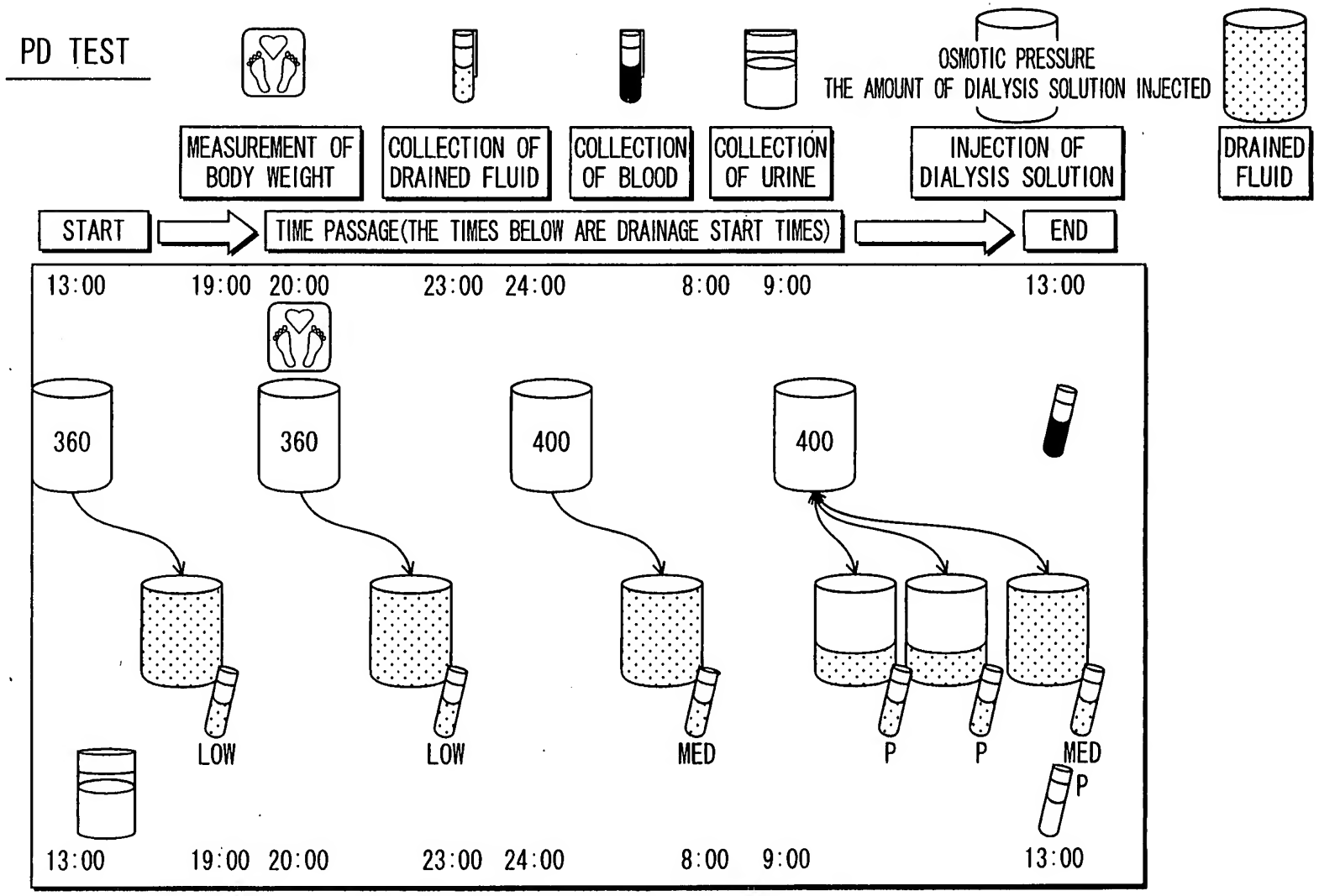

START
S301
PREPARATION OF MULTIPLE PARAMETER SETS BASED ON PPM INITIAL ESTIMATE PARAMETER SET (CODING)
S302
TPT CALCULATION FOR EACH PARAMETER SET
S303
PICK OUT QUASI-ELITE PARAMETER SET BASED ON ERROR EVALUATION
S304
ERROR EVALUATION IS BELOW CRITERION?
S305
CREATION OF GENETIC OFFSPRING FROM QUASI-ELITE PARAMETER SET AND PREPARATION OF MULTIPLE PARAMETER SETS (CODING)
S306
QUASI-ELITE PARAMETER SET IS DETERMINED AS ELITE PARAMETER SET (OPTIMAL SOLUTION)
END

FIG. 15



LOW: LOW OSMOTIC PRESSURE
MED: MEDIUM OSMOTIC PRESSURE
P : SAMPLE USED FOR PET

FIG. 16

ITEM	FIRST EMBODIMENT	SECOND EMBODIMENT
DIALYSIS SOLUTION EXCHANGES	6 TIMES	4 TIMES
BLOOD COLLECTIONS	3 TIMES	ONCE
DRAINED FLUID SAMPLES	8 SAMPLES	6 SAMPLES
BLOOD COLLETION SAMPLES	3 X 2 SAMPLES	1 X 2 SAMPLES
MEASUREMENT OF VOLUME OF DRAINED FLUID	6 BAGS	4 BAGS
URINE COLLECTIONS(24hr)	ONCE	ONCE
URINE COLLECTION SAMPLES	1 SAMPLE	1 SAMPLE